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ABSTRACT

Thirty-six reading specialists and classroom teachers enrolled in a graduate reading diagnosis course participated in a study to determine whether clinical performance could be improved by alterations in a clinician's memory and strategy. Overall procedures in this study included pretests, 30 hours of clinical training in diagnosis, and posttests. During the training segment, the subjects were divided into four different instructional groups: group one represented a traditional approach using real children with suspected reading problems; group two used simulated cases instead of live children; group three used simulated cases as well as decision aids; group four, originally scheduled to use computer based simulations, instead used procedures similar to those of group three. Results of the study suggest that clinical memory and diagnostic performance are related, and that training can improve both. (Tabular material is included.) (AEA)

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TRAINING READING SPECIALISTS IN DIAGNOSIS

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Training Reading Specialists in Diagnosis[1]

George B. Sherman and Stephanie Brown[2]

Previous work in the area of reading diagnosis and remediation (Vinsonhaler, Wagner, & Elstein, Note 1) suggests that the performance of specialists (or clinicians) is determined by the clinician's memory and strategy.[3] According to the Inquiry Theory of Clinical Problem Solving developed by Vinsonhaler et al. (Note 1), the interaction of clinician and case seems to be determined by the clinician's memory and strategy. Further, the Instructional Corollary which derives from this theory states that, if in fact clinical interaction is determined by the clinician's memory and strategy, then clinical performance during the interaction can be improved by alterations in clinical memory and strategy. During the summer of 1977, an exploratory study was conducted to examine this corollary.

Objectives

The objectives of this exploratory study were to examine the following questions:

1. Do clinical memory and strategy relate to performance in diagnosis?

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[1]Paper presented at the 1978 Annual Meeting of the American Educational Research Association.

[2]George B. Sherman is an associate professor of elementary and special education and a senior researcher with IRT's Clinical Studies Program. Stephanie Brown is an assistant professor in the Department of Reading at the University of Arizona.

[3]The clinician's memory consists of a set of problems, cues, treatments, and the relationships among them. Clinical strategy is the sequence of mental tasks performed by the clinician.

2. Can clinical memory and strategy be manipulated by independent variables (such as decision and learning aids, and practice with feedback) so that teachers and specialists can be trained to diagnose reading difficulties in a manner similar to effective senior reading clinicians?

To address these questions, the instruction in a graduate reading diagnosis course at Michigan State University was explicitly studied by a corollary of the Inquiry Theory. Thirty-six reading specialists and classroom teachers enrolled in the course were given aides to increase their experience with cases (memory) and strategies to determine if indeed clinical performance could be improved.

Procedures

Overall procedures in this study included pretests, clinical training in diagnosis, and posttests. Both pre and posttests included:

1. A Memory Battery Association Test, which included:

   a. Factor to Cue Association Test: given a hypothesized factor (e.g., inadequate basic sight word vocabulary), the student was asked to list no more than five findings which would confirm or disconfirm the given hypothesis.

   b. Cue to Factor Association Test: given a list of findings (e.g., trouble with little words, 60% correct on Dolch first-grade lists), the student was asked to generate no more than five problems and/or strengths suggested by the findings given.

   c. Information to Cue Association Test: Given a piece of information (e.g., an annotated oral reading paragraph), the student was asked to identify "important findings" (diagnostic cues), that is, anything observed which may be important in diagnosing a case.

2. A Diagnostic Performance Test using simulated cases[4] of reading difficulty.

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[4]For more information on simulated cases, see: Patriarca, L., VanRoekel, J., & Lezotte, L. Simulated reading and learning disability cases: Effective tools for research and teacher education (Res. Ser. No. 29), East Lansing, MI.: Institute for Research on Teaching, Michigan State University, 1979.

The Diagnostic Performance Test examined each student's ability to diagnose a simulated case of reading difficulty. Both the Memory Battery Association Test and the Diagnostic Performance Test were timed, and the identical materials were used as both pre and post measures.

Clinical training consisted of 30 hours of instruction in a five-week class format. The training started with four different instructional groups. These groups were designed not for purposes of comparison, but to insure the best possible training conditions.

Group One represented a traditional approach in that each student identified two real children with suspected reading problems. Their task was to administer, score, interpret, and write up a formal diagnosis for each of these children. Instruction in this group involved explanation of the uses of various tests and discussion of the diagnostic problems generated by the children being examined.

Group Two used simulated cases instead of live children in its diagnostic encounters. These were reviewed and analyzed in daily sessions with the instructor.

Group Three used simulated cases also, but additionally, was provided with decision aids in the form of decision flow charts and a standardized diagnostic categorization to be used as an aid in writing up the diagnosis.

Group Four was originally scheduled to use computer based simulations combined with an automated preceptor to provide feedback on appropriateness of information search and diagnostic strategy. Unfortunately, computer response time increased drastically over the course of the study and necessitated the use of Group Three procedures with this group.

Results and Discussion

The test results are shown in the following table.

Table: Test Results

	Mean pretest score	Mean posttest score
Memory Battery Association Test	0.26	0.45
Diagnostic Performance Test	0.16	0.47

Figure 1 plots the means for pre and posttest scores on the Diagnostic Performance Test and the Memory Battery Association Test. There was a dramatic change in performance as measured by both tests at the end of the instructional periods. Figure 2 shows the relationship between memory and diagnostic performance. As was predicated by the Inquiry Theory corollary, changes in diagnostic performance are strongly related to changes in clinical memory and strategy.

In sum, this exploratory study suggests that clinical memory and diagnostic performance are related, and that training can improve both.

Limitations

The results of this study, while suggestive, should not be overgeneralized because:

1. The study did not adequately control for the physical separation of the treatment groups.
2. The computer-based treatment condition never went into complete operation.

FIGURE 1: MEANS AND CONFIDENCE INTERVAL (CI) FOR PERFORMANCE AND MEMORY

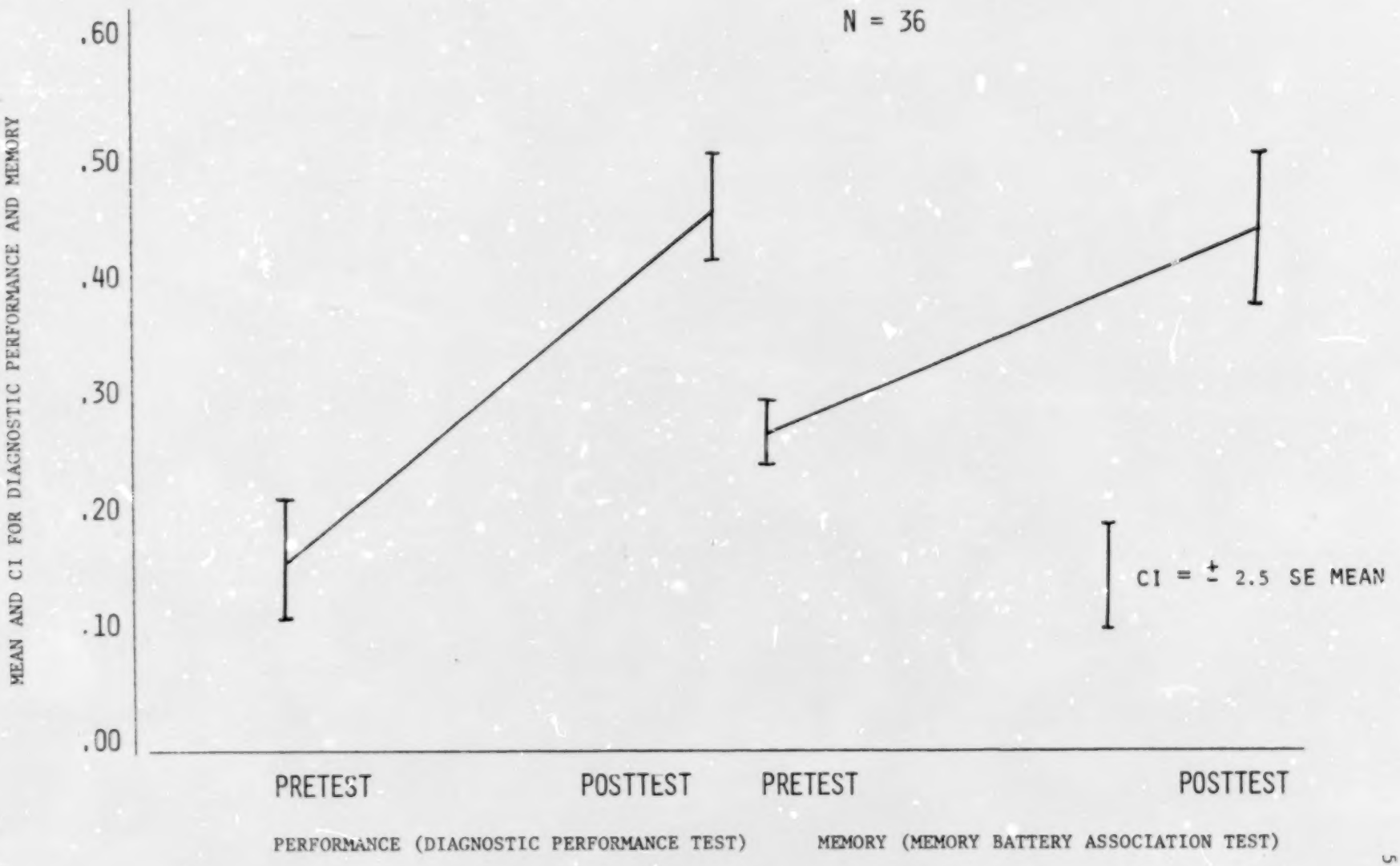
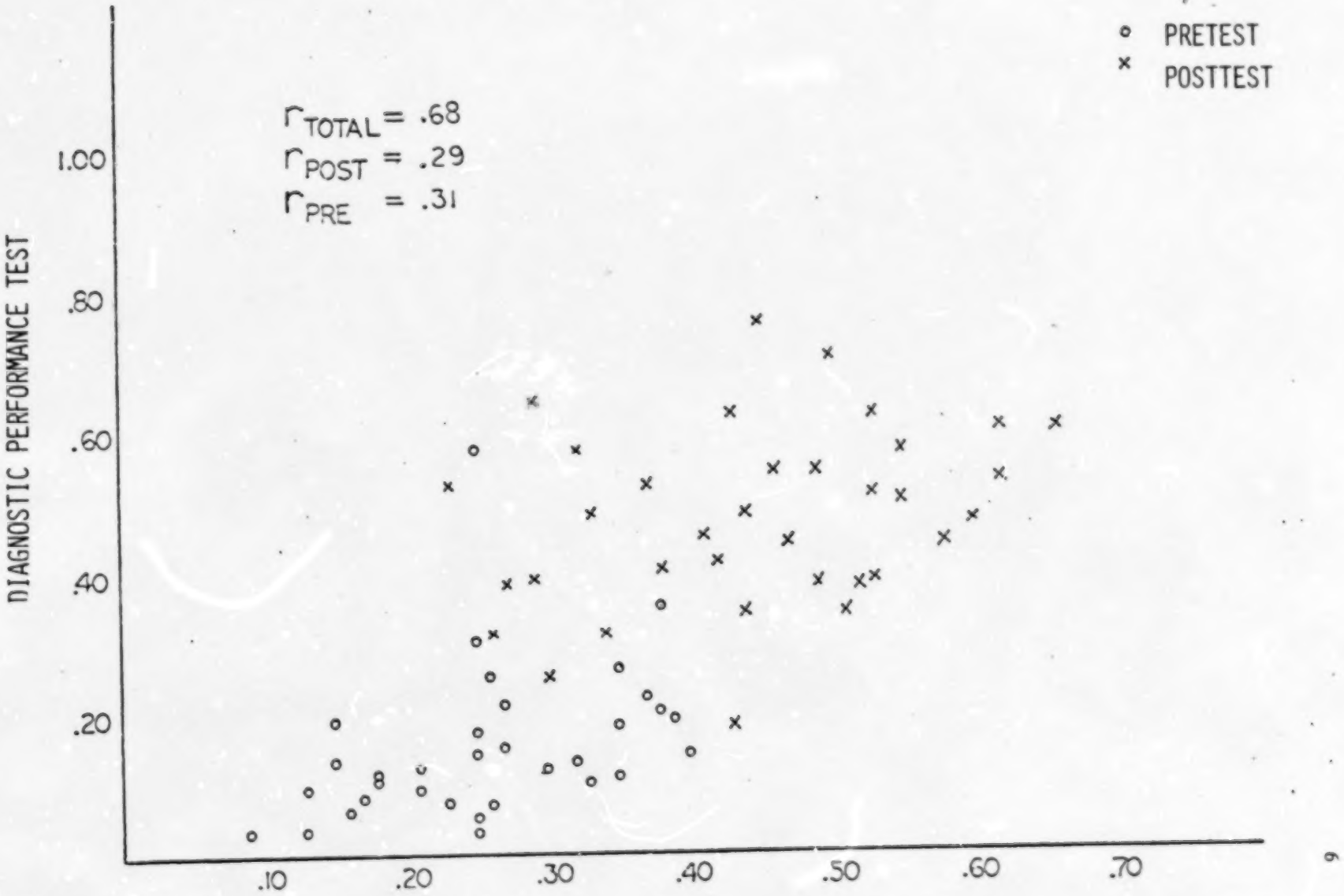


FIGURE 2: RELATIONSHIP BETWEEN MEMORY BATTERY ASSOCIATION TEST AND DIAGNOSTIC PERFORMANCE TEST



3. Comparison groups were not clearly maintained, so differential effects of instruction are unknown.

4. The maintenance of changed diagnostic performance over time was not measured.

5. The results were supposed to reflect changes in clinical memory and strategy. In practice, however, only measures of the impact of memory changes are available.

Implications

Despite the limitations cited, however, the overall study demonstrated dramatic improvement in both clinical memory and diagnostic performance at the end of the clinical training period. While the specific causal factors that may be involved in this change were not clarified in this study, teachers of reading diagnosis can feel encouraged that diagnostic performance can be manipulated and improved by instruction. This study clearly demonstrates that increasing a clinician's knowledge base has a startling impact on diagnostic performance. How this knowledge base can be best created and applied awaits further controlled experimental study.

References Notes

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